

A study of various risk factors among female patients having ischemic heart disease at tertiary health care centre

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Abstract

Introduction: The term 'cardio metabolic risk' evolved from an enhanced understanding of established and emerging risk factors associated with a predisposition to cardiovascular and metabolic diseases. **Aims and Objectives:** To Study. Various Risk Factors among Female Patients Having Ischemic Heart Disease Patients at Tertiary Health Care Centre. **Methodology:** The present study was observational study of 100 female patients of diabetes mellitus(DM), hypertension(HTN), ischemic heart disease(IHD) {chronic CHD} or either in combination, either admitted in wards or following up in OPD over a period of 24 months, from December 2013 to November 2015 in Rural Tertiary Care Hospital. Statistical Analysis done by Chi-square Test. **Result:** out of 100 patients the youngest female was 35 years old and the oldest patient was 90 years old. Maximum number of patients 40 (40%) were in the 61-70 years of age group. Most cases (84%) are found in older >50 years (Postmenopausal group) Number of cases who were having addiction of smoking/ tobacco chewing was more among IHD cases i.e. 32 as compared to non IHD i.e. 05. Similarly number of case having raised cholesterol i.e.29, Hypertension i.e.62, Diabetes mellitus i.e. 52 and Obesity i.e. 66 were more among IHD cases than Non IHD cases. This association of Smoking, Raised cholesterol, Hypertension, Diabetes Mellitus and Obesity with IHD was not statistically significant. **Conclusion:** Among all female patients of CHD and metabolic syndrome studied majority of patients belonged to 61 -70 years. It shows that there is an association between menopause and Cardio metabolic risk..Among various risk factors Obesity was the most common followed by hypertension and diabetes, Family history, addiction, Sedentary life style were also common.

Key Words: Ischemic heart disease(IHD), Hypertension(HTN), Diabetes mellitus(DM), Metabolic Syndrome, Type II diabetes.

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INTRODUCTION

The term 'cardiomatabolic risk' evolved from an enhanced understanding of established and emerging risk factors associated with a predisposition to cardiovascular and metabolic diseases. Cardiomatabolic risk is defined as a cluster of modifiable risk factors and markers that identify individuals at increased risk for CVD (myocardial infarction, stroke, peripheral artery disease) and T2DM.¹ This cluster of risk factors includes those

associated with the ATP III definition of significantly contributing to cardiometabolic morbidity.² The presence of the Metabolic Syndrome (MS) is associated with an increased risk of coronary heart disease, myocardial infarction, and stroke in both sexes.³ Malik, *et al*, determined that in subjects with more than three risk factors (which constitute metabolic syndrome in ATP III), the hazard ratio was 2.71 compared to subjects with no risk factors.⁴ This substantial increased risk of cardiovascular morbidity and mortality associated with the presence of the Met S appeared as independent of other important and potentially confounding factors, such as smoking, plasma LDL-cholesterol levels, and alcohol consumption.⁵ In terms of pathophysiology, the association of metabolic abnormalities represents a highly atherogenic state promoting the formation and growth of atheroma plaques in arteries. It has been recognized that insulin- resistance/hyperinsulinaemia and the underlying consequences related to defects in insulin metabolism are associated with the presence of cardiovascular risk factors such as hypertriglyceridaemia, low HDL-cholesterol,

hypertension, abdominal obesity, impaired fibrinolytic system capacity even in the absence of diabetes. In recent decades the influence of globalisation has played a main role in makeovers of women's lifestyle with considerable emergence of risk factors such as central obesity, glycemic abnormality, cardiovascular disease, Dyslipidemia, hypertension, high waist hip ratio, smoking/tobacco use, sedentary lifestyle, psychosocial stress, poor quality diet, hormonal imbalance and alcohol. All these risk factors highly prevalent in Indian women. Along with these menopausal women are more prone because they lose their hormonal protection. Prevalence of metabolic syndrome is high among Asians including Indians, and is rising, particularly among women with the adoption of modernized lifestyle. Many studies in India have reported high prevalence of metabolic syndrome. Menopause constitutes a transitional period in women's life from reproductive to non reproductive life, which is mainly characterized by a major reduction in estrogens production androgenicity. It can be officially defined as the absence of menstruation for one complete year and occurs between late 40's and early 50 are, depending on the race, ethnicity, lifestyle and coexistent diseases. Postmenopausal women (PMP) exhibit an increased risk for all cause and cardiovascular mortality which is attributed to the increased prevalence of obesity, dyslipidemia, hypertension, insulin resistance and diabetes mellitus, all of which are components of the metabolic syndrome (MS). Total body fat mass as well as its regional distribution, consisting of central fat accumulation, decreased peripheral fat mass and ectopic fat storage, constitute potent determinants of the increased prevalence of MS in PMP women whereas data are less conclusive regarding the contribution of lean body mass. At the same time early menarche and obesity is on the rise in adolescent girls, especially among girls in urban school and middle-class who are more prone to develop metabolic syndrome in future life.

METHODOLOGY

The present study was observational study of 100 female patients of diabetes mellitus(DM), hypertension(HTN),

ischemic heart disease(IHD) {chronic CHD} or either in combination, either admitted in wards or following up in OPD over a period of 24 months, from DECEMBER 2013 to NOVEMBER 2015 in Rural Tertiary Care Hospital. Patients were studied with respect to their clinical profile, risk factors and association of risk factors with CHD. Females more than 12 years of age. Female Patients with either Hypertension, diabetes, Obesity, dyslipidemia, with or without IHD were included into study while Females less than 12 years of age. Patients with diagnosed liver failure, renal failure, cancer, Type I DM, secondary hypertension, HIV, Clinical Profile-Preliminary Data like age, sex, diet and socioeconomic status, Detailed case history regarding complaints. Past history of DM/HTN/IHD, family history of premature CHD, Physical Examination And Laboratorial Investigations were excluded from study. A complete general and systemic examination done in all patients. Blood pressure was measured with mercury sphygmomanometer on at least two occasions with at rest for at least 5 minutes.

RESULT

Table 1: Showing age distribution of patients under study

Age Group(years)	Female Patients	Percentage
31-40	04	4
41-50	12	12
51-60	29	29
61-70	40	40
>71	15	15
Total	100	100

In the above study it was observed that out of 100 patients the youngest female was 35 years old and the oldest patient was 90 years old. Maximum number of patients 40 (40%) were in the 61-70 years of age group. Most cases (84%) are found in older >50 years (Postmenopausal group) It shows that there is an association between menopause and Cardio metabolic risk.

Table 2: Associations of Presence of various risk factors among IHD and Non IHD cases

Sr No	Risk Factors	IHD	Non IHD	Total	χ^2 Value P Value	
1	Addiction	Smokers/Tobacco chewers	32	5	37	$\chi^2=1.984$ P=0.159
		Non Smokers/Tobacco chewers	47	16	63	
		Total	79	21	100	
2	Cholesterol	Raised	29	7	36	$\chi^2=0.82$ P=0.775
		Normal	50	14	64	
		Total	79	21	100	
3	BP	HTN	62	16	78	$\chi^2=0.051$ P=0.822
		Normal	17	5	22	
		Total	79	21	100	

4	DM	Present	52	18	70	$\chi^2=3.12$ P=0.077
		Absent	27	3	30	
		Total	79	21	100	
5	Obesity (WC \geq 80 CM)	Obese	66	15	81	$\chi^2=1.582$ P=0.208
		Non Obese	13	6	19	
		T	79	21	100	

Above table shows association of presence of various risk factors among IHD and Non IHD cases. Number of cases who were having addiction of smoking/ tobacco chewing was more among IHD cases i.e. 32 as compared to non IHD i.e. 05. Similarly number of case having Raised cholesterol i.e.29, Hypertension i.e.62, Diabetes mellitus i.e. 52 and Obesity i.e. 66 were more among IHD cases than Non IHD cases. This association of Smoking, Raised cholesterol, Hypertension, Diabetes Mellitus and Obesity with IHD was not statistically significant.

DISCUSSION

Women present with more atypical symptoms than men like back pain, shortness of breath, burning in the chest, nausea, or fatigue, which makes the diagnosis more difficult. Risk factors for IHD vary between males and females¹¹. Diabetes mellitus is a stronger IHD risk factor in women than in men. Hypertension is associated with a two to threefold increased risk for IHD in women. In women, low levels of high density lipoprotein are strong predictors of higher IHD risk than high levels of low density lipoprotein.¹² Studies have shown complex relationship between IHD risk, estrogen, menopause and serum cholesterol in women.^{13,14} Antiestrogenic effect of tobacco and smoking increases the risk of IHD in premenopausal women¹⁵. Studies have shown, in women cardiovascular risk profiles improve with increasing levels of physical activity¹⁶. In women central obesity was observed as one of the major risk factor for IHD¹⁷. The Metabolic Syndrome (syndrome X, insulin resistance syndrome) consists of a constellation of metabolic abnormalities that confer increased risk of cardiovascular disease (CVD) and diabetes mellitus. Evolution of the criteria for the metabolic syndrome since the original definition by the World Health Organization in 1998 reflects growing clinical evidence and analysis by a variety of consensus conferences and professional organizations. The major features of the metabolic syndrome include central obesity, hypertriglyceridemia, low levels of high-density lipoprotein (HDL) cholesterol, hyperglycemia, and hypertension Overall, the risk for type 2 diabetes among patients with the metabolic syndrome is increased three- to fivefold. In the Framingham Offspring Study's 8-year follow-up of middle-aged participants, the population-attributable risk for developing type 2 diabetes was 62% among men and 47% among women.⁷ In the present study with respect to

components of lipid profile it was observed that raised serum cholesterol was found in 36% of patients which was comparable with V. Achari *et al*⁸ who found it raised in 34.71% of population. Low HDL was observed in 74% of patients which is comparable to Kasliwal *et al* (72.5%)⁹. High triglycerides was observed in 57% of patients which is more than S. Dwivedi *et al*. (39.94%)¹⁰

CONCLUSION

Among all female patients of CHD and metabolic syndrome studied majority of patients belonged to 61 -70 years. It shows that there is an association between menopause and Cardio metabolic risk. It shows that there is an association between menopause and Cardio metabolic risk. Among various risk factors Obesity was the most common followed by hypertension and diabetes , Family history, addiction, Sedentary life style were also common.

REFERENCES

1. Sowers JR. Update on the cardiometabolic syndrome. Clin Cornerstone[Internet].2001;4(2):17–23. Available from: <http://www.sciencedirect.com/science/article/pii/S1098359701900262>
2. NCEP. Third Report of the National Cholesterol Education Program (NCEP) Expert Panel on.01-3670 [Internet]. 2001;40. Available from: <http://www.nhlbi.nih.gov/files/docs/guidelines/atp3xsum.pdf>
3. Kendall DM, Sobel BE, Coulston AM, Peters Harmel AL, McLean BK, Peragallo-Dittko V, *et al*. The insulin resistance syndrome and coronary artery disease. Coron Artery Dis. 2003;14(4):335–48.
4. Malik S, Wong ND, Franklin SS, Kamath T V., L'Italian GJ, Pio JR, *et al*. Impact of the metabolic syndrome on mortality from coronary heart disease, cardiovascular disease, and all causes in United States adults. Circulation. 2004;110:1245–50.
5. Haffner SM, Valdez R a, Hazuda HP, Mitchell BD, Morales P a, Stern MP. Prospective analysis of the insulin-resistance syndrome (syndrome X).Diabetes [Internet].1992;41(6):715– 22. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/1587398>
6. Lin J-W, Caffrey JL, Chang M-H, Lin Y-S. Sex, menopause, metabolicsyndrome, and all-cause and cause-specific mortality--cohort analysisfrom the Third National Health and Nutrition Examination Survey. J ClinEndocrinolMetab.2010;95(9):4258–67.
7. Eckel RH, Grundy SM, Zimmet PZ. The metabolic syndrome.Lancet.2005. p. 1415–28.

8. Achari V, Thakur AK. Association of major modifiable risk factors among patients with coronary artery disease-- a retrospective analysis. *J Assoc Physicians India* [Internet]. 2004;52:103-8. Available from: <http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=med5&NEWS=N&AN=15656042>
9. Kasliwal RR, Kulshreshtha A, Agrawal S, Bansal M, Trehan N. Prevalence of cardiovascular risk factors in Indian patients undergoing coronary artery bypass surgery. *J Assoc Physicians India*. 2006;54:371-5.
10. Aggarwal A, Dwivedi S, Dev M. Risk factor differences predisposing to recurrence and/or death in young early onset coronary artery disease patients. *Atheroscler Suppl* [Internet]. 2010;11(2):164-5. Available from: <http://www.embase.com/search/results?subaction=viewrecord&from=export&id=L70202269> \n [http://dx.doi.org/10.1016/S1567-5688\(10\)70775-3](http://dx.doi.org/10.1016/S1567-5688(10)70775-3) [http://sfx.library.uu.nl/utrecht?sid=EMBASE&issn=15675688&id=doi:10.1016/S1567-5688\(10\)70775-3&title=Risk+factor+differen](http://sfx.library.uu.nl/utrecht?sid=EMBASE&issn=15675688&id=doi:10.1016/S1567-5688(10)70775-3&title=Risk+factor+differen)
11. Mikhail GW; Coronary heart disease in women. *BMJ*, 2005; 331(7515): 467-468.
12. Wenger NK; Coronary heart disease: The female heart is vulnerable. *Prog Cardiovasc Dis.*, 2003; 46(3): 199-299.
13. Stampfer MJ, Colditz GA, Willett WC, Manson JE, Rosner B, Speizer FE *et al.*; Postmenopausal estrogen therapy and cardiovascular disease. ten-year follow-up from the nurses health study. *N Engl J Med.*, 1991; 325: 756-762.
14. Stampfer MJ, Colditz GA; Estrogen replacement therapy and coronary heart disease: Quantitative assessment of the epidemiologic evidence. *Prev Med.*, 1991; 20(1): 47-63.
15. Enas EA, Senthilkumar A, Juturu V, Gupta R; Coronary artery disease in women. *Indian Heart J.*, 2001; 53: 282-292.
16. O'Toole ML; Exercise and physical activity. In Douglas PS editor; *Cardiovascular health and disease in women*. W. B. Saunders, Philadelphia, 1993: 253-268.
17. Manson JE, Colditz GA, Stampfer MJ, Willett WC, Rosner B, Manson RR *et al.*; A prospective study of obesity and risk of coronary heart disease in women. *N Engl J Med.*, 1990; 322(13): 882-889.

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